

## REMARKS

In response to the Office action dated February 5, 2009, Applicants respectfully request reconsideration based on previous amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 6-13 and 20-25 are pending in the present application. No claims have been amended or canceled, leaving Claims 6-13 and 20-25 for consideration upon entry of the present amendment.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

### **Claim Rejections Under 35 U.S.C. § 103**

Claims 6-13 and 20-25 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent 6,281,552 to Kawasaki et al. (hereinafter "Kawasaki") and further in view of U.S. Patent No. 5,496,752 to Nasu et al. (hereinafter "Nasu") (See Office Action dated 02-05-09, page 2)

The Examiner states that "Kawasaki does not disclose the metal oxide film is an opaque metal oxide film including an oxide of a conductive material, a side of the metal film (103) is uncovered by the metal oxide film." (See Office Action dated 02-05-09, page 2) The Examiner further states that "Nasu discloses the metal oxide film (figure 38b) is an opaque metal oxide film including an oxide of a conductive material a side of the metal film (50, for example Fig. 38b) is uncovered by the metal oxide film. (See Office Action dated 02-05-09, page 3) The Examiner further states that "[T]herefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use Nasu's material for the purpose of improving the image intensity in a light-emitting device whose bus-line overlies the device's light emitting regions. (See Office Action dated 02-05-09, page 3) The Applicants respectfully disagree.

Claim 6 is directed to *inter alia* a thin film transistor array panel comprising a gate wire and a data wire, wherein the gate wire or the data wire comprises a metal film including a conductive material disposed on the insulating substrate or the gate insulating film and **an**

**opaque metal oxide film** including an oxide of a conductive material disposed on the metal film, wherein the opaque metal oxide film of the gate wire and the data wire block light, and a side of the metal film is uncovered by the opaque metal oxide film.

Kawasaki teaches thin film transistors disposed on a substrate having an insulating surface. (see Col. 1, lines 5 – 10) Kawasaki in its Figure 1 teaches gate electrodes 102 to 104 disposed upon a substrate. (see Col. 5, lines 32 – 34) Kawasaki teaches that the electrodes are formed from tantalum, titanium, aluminum, tungsten, molybdenum, and the like. (see Col. 4, lines 33 – 35) Kawasaki in its Figure 1 teaches that a gate insulating layer 105 comprising silicon nitride is formed on the gate electrodes 102 to 104. As admitted by the Examiner on page 3, lines 3 – 6 of the Office Action, Kawasaki does not teach that an opaque metal oxide film is formed on the metal electrodes. Kawasaki thus does not teach all elements of the claimed invention.

The Examiner has alleged that Nasu teaches an opaque metal oxide film in Figure 38b. This is inaccurate. Figure 38b of Nasu relied upon by the Examiner discloses a two-layered gate electrode 50 on the glass substrate 21. (see Col. 23, lines 47-60.) In particular, Nasu discloses that first, as shown in FIG. 38A, an indium tin oxide (ITO) film 47 and a Cr film 48 are deposited one after another in a thickness of 80 nm, respectively, on the glass substrate 21 by a sputtering method. Then, a photoresist film 49 is applied thereto and is revealed and developed, thereby to form a pattern covering the gate electrode region, the gate bus line region and the gate bus terminal portion.

In the first instance, the ITO film of Nasu is not an opaque metal oxide, but is a well known electrically conducting transparent metal oxide. Nasu states as much in Col. 26, lines 6 – 8, where it states that “[A]s a result, the gate bus terminal portion 52, the pixel electrode 58 and the drain bus terminal portion 59 composed of a transparent ITO film are revealed.” Nasu thus does not teach an opaque metal oxide as presently claimed. Not only does Nasu not teach the claimed elements, but in teaching a transparent metal oxide, it teaches away from the claimed invention. The Applicants believe that Nasu does not teach the very elements that Kawasaki neglects to teach.

In addition, Nasu goes on to teach that the Cr film 48, which is not covered by the photoresist film 49 is etched with an aqueous solution containing cerium nitrate secondary ammonia as a principal ingredient, and the ITO film 47 thereunder is removed by etching with an aqueous solution containing hydrochloric acid and ferric chloride as principal ingredients, thereby to apply patterning. With this, as shown in FIG. 38B and FIG. 39A, a gate electrode 50, a gate bus line 51 connected thereto and a gate bus terminal portion 52 are formed. (Col. 23, line 61- col. 24, line 9.) Thus, Nasu discloses the ITO film 47 [oxide film] on the glass substrate 21 and the Cr film 48 [metal film] on the ITO film 47 [oxide film], which is opposite to the structure claimed in the present application (i.e., oxide film on metal film, which is on insulating substrate or gate insulating film). Once again Nasu teaches away from the claimed invention.

Since neither Kawasaki nor Nasu teach all elements of the claimed invention, there is no motivation for one of ordinary skill in the art to combine references. In addition, Nasu's "teaching away" from the claimed invention would demotivate one of ordinary skill in the art from combining it with Kawasaki.

In summary, the Applicants believe that the Examiner has not made a prima facie case of obviousness over Kawasaki in view of Nasu. The Applicants respectfully request a withdrawal of the obviousness rejection and an allowance of the claims.

**Conclusion**

In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

In the event the Commissioner of Patents and Trademarks deems additional fees to be due in connection with this application, Applicants' attorney hereby authorizes that such fee be charged to Deposit Account No. 06-1130.

Respectfully submitted,

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